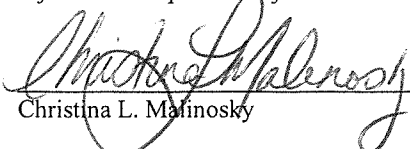


PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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Christina L. Malinosky

Applicant : Shinichi Okawa, et al. Confirmation No. 4987
Application No. : 10/582,302
Filed : June 8, 2006
Title : DENTAL DIAGNOSTIC AND TREATMENT APPARATUS

Grp./Div. : 3732
Examiner : Sunil K. Singh

Docket No. : 57800/A400

APPELLANT'S BRIEF

Mail Stop Appeal Brief-Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Post Office Box 7068
Pasadena, CA 91109-7068
July 28, 2010

Commissioner:

1. REAL PARTY IN INTEREST

Shinichi Okawa, Kenji Kino, and Kazunari Matoba, the parties named in the caption, assigned their rights to the invention disclosed in the subject application through an Assignment recorded on May 30, 2007 at reel 019356 and frame 0673 to J. Morita Manufacturing Corporation. Therefore, J. Morita Manufacturing Corporation is the real party in interest.

2. RELATED APPEALS AND INTERFERENCES

There are no related appeals and/or interferences for this Application.

3. STATUS OF CLAIMS

Claims 42-80 are pending, of which claims 62, 63 and 76 are withdrawn. Claims 42-61, 64-75, and 77-80 stand rejected. Appellant appeals the rejections of claims 42-61, 64-75, and 77-80.

4. STATUS OF AMENDMENTS

Amendments to the claims were submitted in an AMENDMENT AFTER FINAL ACTION, mailed on June 9, 2010. However, the above amendment was not entered by the Examiner, because it allegedly "raised new issues that would require further consideration and/or search," according to the ADVISORY ACTION dated June 24, 2010.

5. SUMMARY OF CLAIMED SUBJECT MATTER

The subject matter of claim 42 relates to a dental treatment apparatus (FIGs. 1-53). The dental treatment apparatus includes an instrument having a forward end equipped with treatment tool for treating a lesion in an oral cavity. (For example, page 70, lines 11-29; and FIGs. 39-30). The dental treatment apparatus also includes a light radiating unit having a first light source for emitting excitation light and a second light source for emitting illumination light into said oral cavity, said first and second light sources being disposed at or near said forward end. (Id.). The wavelength of said excitation light is selected from within a near ultraviolet region of 405 ± 50 nm, a red region of 700 ± 100 nm, an infrared region, or a near infrared region. (Page 38, lines 8-20).

The light radiating unit may further include (claim 51) an excitation light source for emitting the excitation light and a white light source for emitting a white light, and is configured to radiate the excitation light or the white light by switching lighting between the excitation light source and the white light source. (Page 34, line 30 to page 35, line 7). The light radiating unit may be further configured to variably adjust a light emission level of at least one of the light sources. (Page 55, line 11-25).

6. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Claims 42-60 and 77-80 rejected under 35 U.S.C. 102(b) as being anticipated by Katsuda, U.S. Pub. No. 2005/0003323 ("Katsuda "); and Claims 61 and 64-75 rejected under 35 U.S.C. 103(a) as being unpatentable over Katsuda in view of Nakanishi, U.S. Patent No. 6,607,384 ("Nakanishi").

7. ARGUMENT

A. Rejection of independent claim 42 as being anticipated by Katsuda.

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To establish anticipation, the Examiner must show that the cited reference teaches each of the elements of the claim.

In regard to claim 42, it includes the elements of "an instrument having a forward end equipped with a treatment tool for treating a lesion in an oral cavity," "a light radiating unit having a first light source for emitting excitation light and a second light source for emitting illumination light into said oral cavity," and "said first and second light sources being disposed at or near said forward end." Katsuda does not teach any of the above limitations.

First, Katsuda does not teach "an instrument ... equipped with a treatment tool for treating a lesion in an oral cavity." Rather, Katsuda discloses a camera (image sensing device) for sensing fluorescence from an object being diagnosed. The "instrument" of Katsuda is not equipped with a treatment tool. Although, "the diagnostic imaging apparatus A may be constructed to be used as a photo polymerization radiator with blue LED as a luminous means," (paragraph [0156]) there is no disclosure about the apparatus being a treatment device, because neither diagnostic, nor "photo polymerization radiator" can be construed as a "treatment tool." The Examiner contends that Appellant had argued "the intended purpose of the prior art" and therefore is not given a full patentable weight. (Advisory Action). However, it is clear that "an instrument ... equipped with a treatment tool" is a structural limitation and has to be given its full patentability weight.

Second, Katsuda does not teach "a wavelength of said excitation light is selected from within a near ultraviolet region of 405 ± 50 nm, a red region of 700 ± 100 nm, an infrared region, or a near infrared region." The Examiner cites to paragraph [0169] of Katsuda as teaching this limitation. Appellant respectfully disagrees. The cited paragraph clearly discloses that:

For photographing dental calculus and dental plaque, the luminous means 2 is set to emit the light with wavelength of $375.\pm .25$ nm and the light receiving filter 12 is set to pass the light with wavelength of above 430 nm.

Id., lines 4-8, underlining added.

That is the final light emitted "into" the target object (e.g., the alleged oral cavity) has a wavelength of 430 nm. In contrast, claim 42 recites the "excitation light" as a light emitted "into said oral cavity," which is selected from within a near ultraviolet region of 405 ± 50 nm, a red

region of 700±100 nm, an infrared region, or a near infrared region." Accordingly, the light of Katsuda (to be emitted into the object), which has a wavelength of above 430 nm does not teach the claimed excitation light "selected from within a near ultraviolet region of 405±50 nm, a red region of 700±100 nm, an infrared region, or a near infrared region."

As a result, for at least any of the above two reasons, the Patent Office has failed to establish that the cited reference, Katsuda teaches all of the elements of the claim 42. Accordingly, it is respectfully requested that the anticipation rejection of claim 42 be overturned.

B. Rejection of dependent claim 51 as being anticipated by Katsuda.

Dependent claim 51 includes the limitation of "wherein said light radiating unit includes an excitation light source for emitting said excitation light and a white light source for emitting a white light, and is configured to radiate said excitation light or said white light by switching lighting between said excitation light source and said white light source, or configured to variably adjust a light emission level of at least one of said light sources." Katsuda teaches:

the light source selection switch 7 is designed as a rotary type switch such that four kinds of turn-on conditions are sequentially switched by pushing the switch 7 [manually]. The four kinds are; the first condition in which only two white LEDs 2a are turned on, the second condition in which only two infrared LEDs 2b are turned on, the third condition in which only two ultraviolet LEDs 2c are turned on, and the fourth condition in which all six LEDs 2a-2c are turned on.

Paragraph [0111], emphasis added.

This disclosure does not teach "said light radiating unit . . . is configured to radiate said excitation light or said white light by switching lighting between said first light source and said second light source," neither does it disclose "variably adjust[ing] a light emission level of at least one of aid first light source [excitation light] and said second light source [white light])."

Consequently, it is respectfully requested that the rejection of claim 51 be overturned.

C. Rejection of the remaining dependent claims 43-50, 52-61, 64-75, and 77-80.

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Remaining dependent claims 43-50, 52-61, 64-75, and 77-80 are dependent from allowable independent claim 42 and therefore include all the limitations of the allowable claim 42 and additional limitations therein. Accordingly, claims 43-50, 52-61, 64-75, and 77-80 are also allowable over the cited references, as being dependent from an allowable independent claim 42, and for the additional limitations they include therein.

Accordingly, it is respectfully requested that the rejections of dependent claims 43-50, 52-61, 64-75, and 77-80 be overturned.

Conclusion

Accordingly, it is submitted that the rejections of claims 42-60 and 77-80 based on 35 U.S.C. § 102(e); and rejection of claims 61 and 64-75 based on 35 U.S.C. § 103(a) be overturned.

8. CLAIM APPENDIX

1.-41. (Cancelled)

42. (Previously Presented) A dental treatment apparatus comprising:
an instrument having a forward end equipped with treatment tool for treating a lesion in an oral cavity; and
a light radiating unit having a first light source for emitting excitation light and a second light source for emitting illumination light into said oral cavity, said first and second light sources being disposed at or near said forward end, wherein
a wavelength of said excitation light is selected from within a near ultraviolet region of 405 ± 50 nm, a red region of 700 ± 100 nm, an infrared region, or a near infrared region.

43. (Previously Presented) A dental treatment apparatus as claimed in claim 42, wherein said light radiating unit is configured to simultaneously radiate said excitation light and said illumination light.

44. (Previously Presented) A dental treatment apparatus as claimed in claim 42, wherein said light radiating unit is configured to selectively radiate said excitation light and said illumination light.

45. (Previously Presented) A dental treatment apparatus as claimed in claim 42, wherein said illumination light is a white light.

46. (Previously Presented) A dental treatment apparatus as claimed in claim 42, wherein each of said first light source for emitting excitation light and said second light source for emitting illumination light include a light-emitting device constructed from a light-emitting diode or a semiconductor laser diode.

47. (Previously Presented) A dental treatment apparatus as claimed in claim 46, wherein said second light source for emitting illumination light includes a light-emitting device for emitting a white light.

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48. (Previously Presented) A dental treatment apparatus as claimed in claim 47, wherein said light radiating unit is configured to simultaneously radiate said excitation light and said illumination light.

49. (Previously Presented) A dental treatment apparatus as claimed in claim 46, wherein said light radiating unit is configured to variably adjust light emission levels of said light sources.

50. (Previously Presented) A dental treatment apparatus as claimed in claim 46, wherein said light radiating unit includes a plurality of light sources for emitting said excitation light at different wavelengths, and is configured to radiate light at one wavelength by switching between said plurality of light sources or is configured to variably adjust a light emission level of at least one of said light sources.

51. (Previously Presented) A dental treatment apparatus as claimed in claim 50, wherein said light radiating unit includes an excitation light source for emitting said excitation light and a white light source for emitting a white light, and is configured to radiate said excitation light or said white light by switching lighting between said excitation light source and said white light source, or configured to variably adjust a light emission level of at least one of said light sources.

52. (Previously Presented) A dental treatment apparatus as claimed in claim 50, wherein said light radiating unit includes a plurality of light sources for emitting said excitation light at different wavelengths, and is configured to radiate said excitation light at one wavelength by switching lighting between said plurality of light sources, or is configured to variably adjust an excitation light emission level of at least one of said light sources.

53. (Previously Presented) A dental treatment apparatus as claimed in claim 50, wherein said light radiating unit includes a plurality of excitation light sources for emitting said excitation light at different wavelengths and a white light source for emitting white light, and is configured to radiate said excitation light and said white light by switching lighting between said

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plurality of excitation light sources and said white light source, or is configured to variably adjust a light emission level of at least one light source selected from among said plurality of excitation light sources and said white light source.

54. (Previously Presented) A dental treatment apparatus as claimed in claim 42, wherein said second light source of said light radiating unit includes a type of lamp selected from a group consisting of a halogen lamp, a xenon lamp, a sodium lamp, a metal halide lamp, a mercury lamp, and a blacklight lamp.

55. (Previously Presented) A dental treatment apparatus as claimed in claim 54, wherein said light radiating unit includes an optical filter for selecting light of a designated wavelength from the light emitted from said first light source.

56. (Previously Presented) A dental treatment apparatus as claimed in claim 55, wherein the light of said designated wavelength is selected by said filter with a second filter having a different characteristic.

57. (Previously Presented) A dental treatment apparatus as claimed in claim 54, wherein said light radiating unit is configured to variably adjust a light emission level of said second light source.

58. (Previously Presented) A dental treatment apparatus as claimed in claim 42, wherein said light radiating unit includes a plurality of light sources for emitting said excitation light at different wavelengths, and is configured to select the excitation light to be emitted by sequentially switching between said plurality of light sources to sequentially radiate said excitation light at said different wavelengths in a time-division fashion.

59. (Previously Presented) A dental treatment apparatus as claimed in claim 42, wherein said light radiating unit includes a radiating part from which said excitation light and said illumination light are radiated toward said lesion, and wherein said radiating part is disposed in said treatment tool or near a mounting portion of said treatment tool.

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60. (Previously Presented) A dental treatment apparatus as claimed in claim 59, wherein said excitation light and said illumination light are radiated from an area surrounding said treatment tool toward said lesion.

61. (Previously Presented) A dental treatment apparatus as claimed in claim 42, wherein said first and second light sources are mounted on a detachable member formed to be detachable from said forward end, and

said detachable member includes a connecting member which is configured to detachably engage with said forward end and which, when placed into engagement with said forward end, to supply power to said light sources.

62. (Withdrawn) A dental treatment apparatus as claimed in claim 42, wherein said treatment tool is attached to said forward end, and

said first and second light sources are disposed on said forward end.

63. (Withdrawn) A dental treatment apparatus as claimed in claim 62, wherein said light radiating unit radiates said excitation light and said illumination light onto said lesion in a time-division fashion.

64. (Previously Presented) A dental treatment apparatus as claimed in claim 42, wherein a radiating part, from which said excitation light or said illumination light are radiated toward said lesion, or each of said first and second light sources is provided in an adapter having a mounting member capable of being detachably mounted on the forward end of said instrument.

65. (Previously Presented) A dental treatment apparatus as claimed in claim 64, wherein said first light source for emitting said excitation light and said second light source for emitting said illumination light into said oral cavity each include a plurality of light-emitting devices, and wherein

said plurality of light-emitting devices are arranged side by side in an end face portion of said adapter.

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66. (Previously Presented) A dental treatment apparatus as claimed in claim 64, wherein said adapter has a ring-shaped structure which is detachably fitted onto the forward end of said instrument.

67. (Previously Presented) A dental treatment apparatus as claimed in claim 64, wherein said adapter includes an operating part for operating light illuminations of said first and second light sources.

68. (Previously Presented) A dental treatment apparatus as claimed in claim 67, wherein said adapter includes a power supply for driving said light sources for lighting.

69. (Previously Presented) A dental treatment apparatus as claimed in claim 68, wherein said power supply is a primary cell or a secondary cell.

70. (Previously Presented) A dental treatment apparatus as claimed in claim 64, wherein a power supply for driving said first and second light sources is provided separately from said adapter.

71. (Previously Presented) A dental treatment apparatus as claimed in claim 70, wherein said power supply is detachably mounted on a body of said instrument.

72. (Previously Presented) A dental treatment apparatus as claimed in claim 64, wherein an operating part for operating lighting of said first and second light sources is detachably mounted on a body of said instrument.

73. (Previously Presented) A dental treatment apparatus as claimed in claim 64, wherein said mounting member is configured to elastically hold said adapter on the forward end of said instrument.

74. (Previously Presented) A dental treatment apparatus as claimed in claim 64, wherein said adapter includes a filter plate having a plane surface perpendicular to an axis direction of a body of said instrument, and said plane surface spreading to encircle said body.

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75. (Previously Presented) A dental treatment apparatus as claimed in claim 64, wherein when said instrument includes an illuminating unit for illuminating said oral cavity, said adapter is mounted at a position that interrupts the illumination light emitted from said illuminating unit.

76. (Withdrawn) A dental treatment apparatus as claimed in claim 42, wherein said instrument is a laser handpiece configured to radiate a treatment laser light into said oral cavity together with a guide light to locate an area being illuminated by said treatment laser light, and wherein
said excitation light is contained in said guide light.

77. (Previously Presented) A dental treatment apparatus as claimed in claim 46, wherein said light source includes said light-emitting device mounted near a mounting portion of said treatment tool.

78. (Previously Presented) A dental treatment apparatus as claimed in claim 77, wherein said light-emitting device is mounted in such a manner as to encircle said treatment tool.

79. (Previously Presented) A dental treatment apparatus as claimed in claim 77, wherein said light-emitting device is accommodated in a position near the mounting portion of said treatment tool.

80. (Previously Presented) A dental treatment apparatus as claimed in claim 42, wherein said light radiating unit includes a plurality of light sources each for emitting excitation light of a different wavelength, and
an operating part configured to switch lighting between said plurality of light sources or configured to variably adjust a light emission level of at least one of said light sources is mounted on said instrument.

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9. EVIDENCE APPENDIX

None.

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10. RELATED PROCEEDING APPENDIX

None.

Respectfully submitted,

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By



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